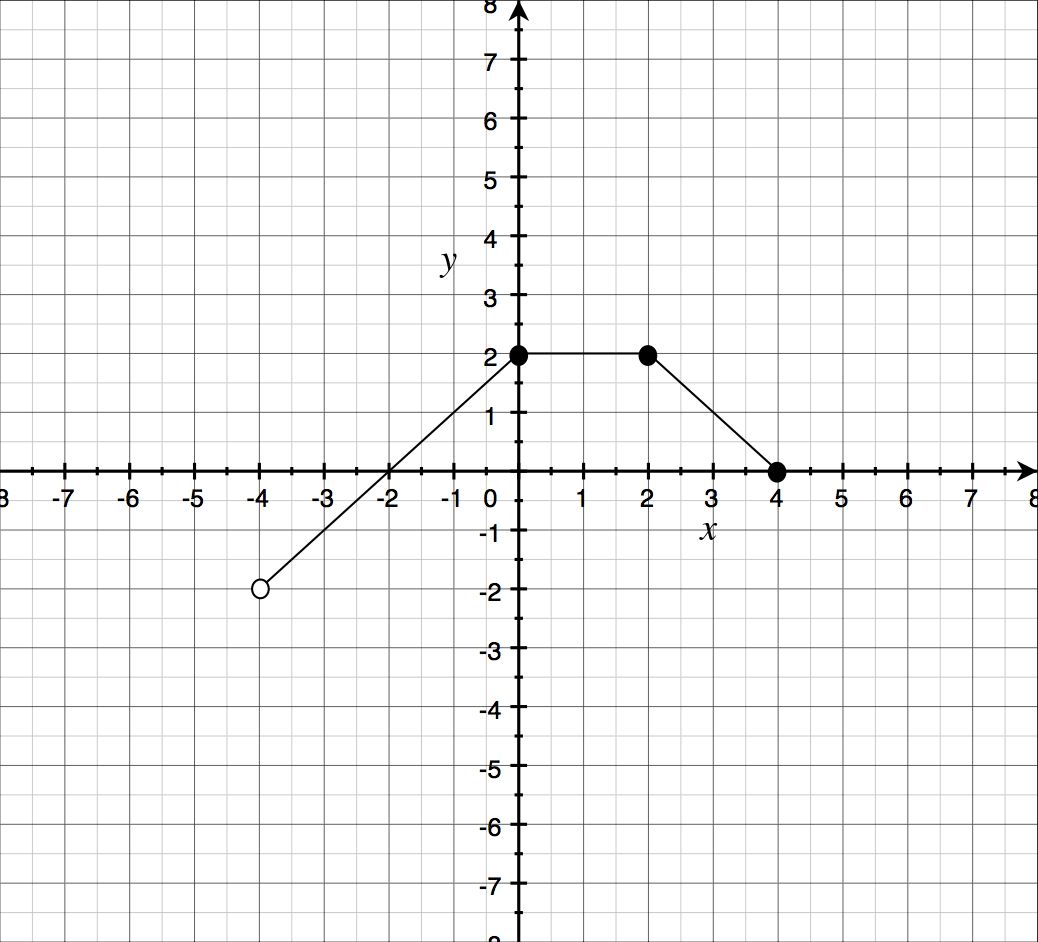
**Function Transformations in One Place** Name:

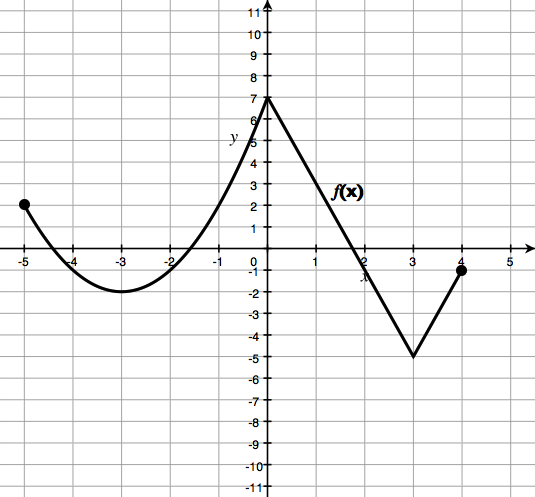
Rodriguez/Adv Algebra

**Part 1:** Where will the given point end up after the function is changed?

|  |  |  |
| --- | --- | --- |
| Point on the graph of **y = *f*(x)** | Equation of the new graph | Coordinates of the moved point |
| (5, 3) | **y = 6*f*(x)** |  |
| (-2, 8) | **y = *f*(x) – 10** |  |
| (7, -4) | **y = ¼*f*(x)** |  |
| (18, 0) | **y = -3*f*(x) + 5** |  |
| (7, -6) | **y = -4*f*(x) – 1** |  |

**Part 2:** Draw and label the graphs of the new functions.

****



***f*(x)**

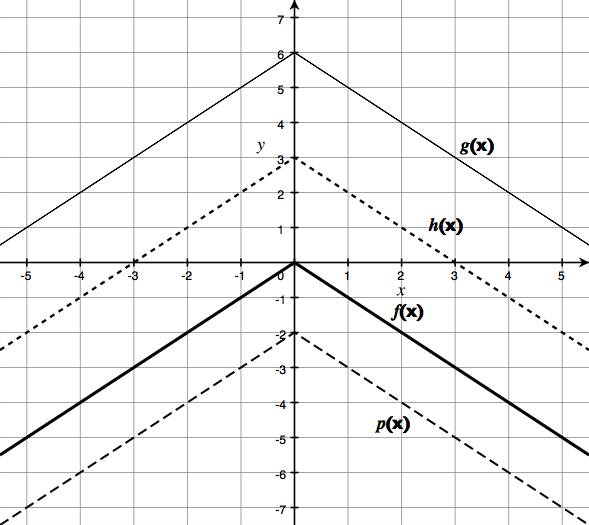
*g*(x) = *f*(x) – 5 *g*(x) = ­­-*f*(x)

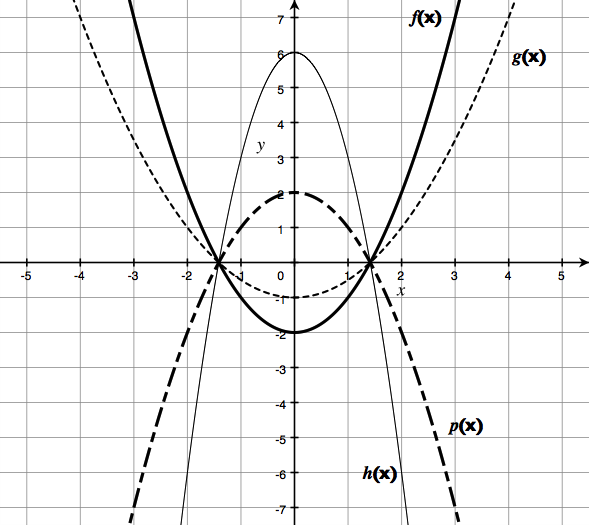
*h*(x) = 3*f*(x) – 1 *h*(x) = ½*f*(x) + 6

**Part 3:** Where will the given point end up after the function is changed?

|  |  |  |
| --- | --- | --- |
| Point on the graph of **y = *f*(x)** | Equation of the new graph | Coordinates of the moved point |
| (0, 9) | **y = -2*f*(x) + 5** |  |
| (9, 0) | **y = -2*f*(x) + 5** |  |
| (12, 6) | **y = ½*f*(x) – 7** |  |
| (-5, -3) | **y = 5*f*(x) – 10** |  |
| (7, ½) | **y = 8*f*(x) + 5** |  |

**Part 4:** Match the graphs with their function names.





**Part 5:** Draw and label the graphs of the new functions.

**\_\_\_\_\_\_ = *f*(x) – 2**

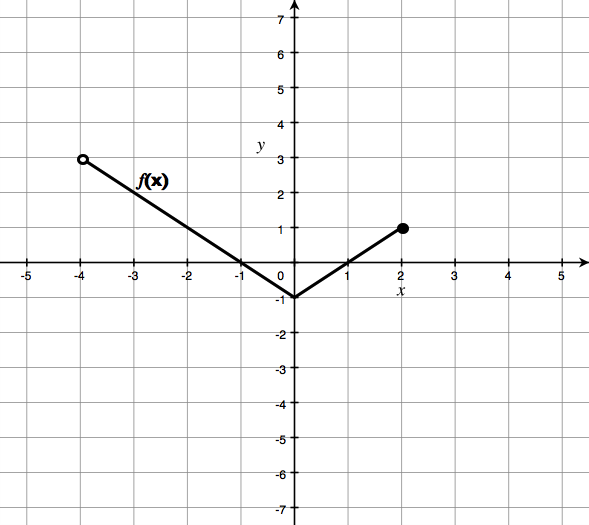
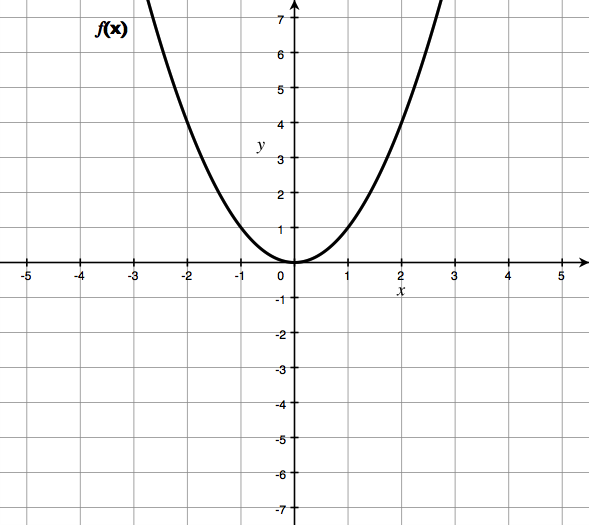
**\_\_\_\_\_\_ = *f*(x) + 3**

**\_\_\_\_\_\_ = *f*(x) + 6**

**\_\_\_\_\_\_ = -*f*(x)**

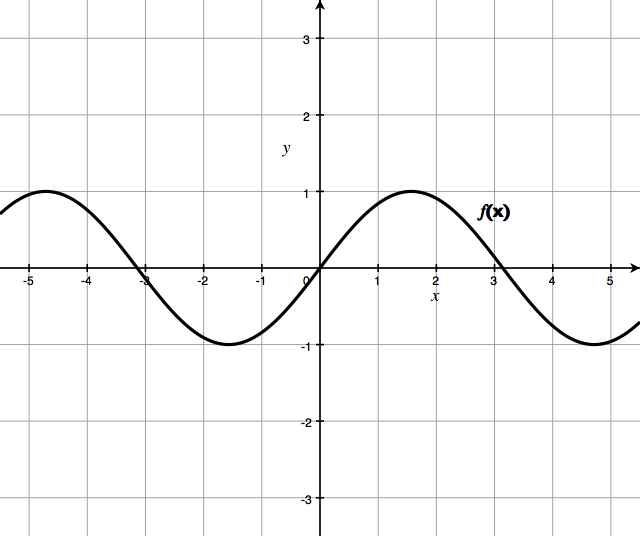
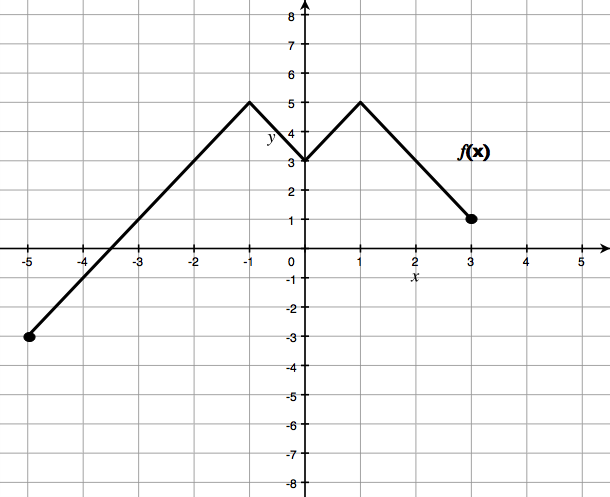
**\_\_\_\_\_\_ = -3*f*(x)**

**\_\_\_\_\_\_ = ½*f*(x)**



*g*(x) = -2*f*(x) +1 *g*(x) = ­­½*f*(x) + 2

*h*(x) = ½*f*(x) – 5 *h*(x) = -*f*(x) + 1



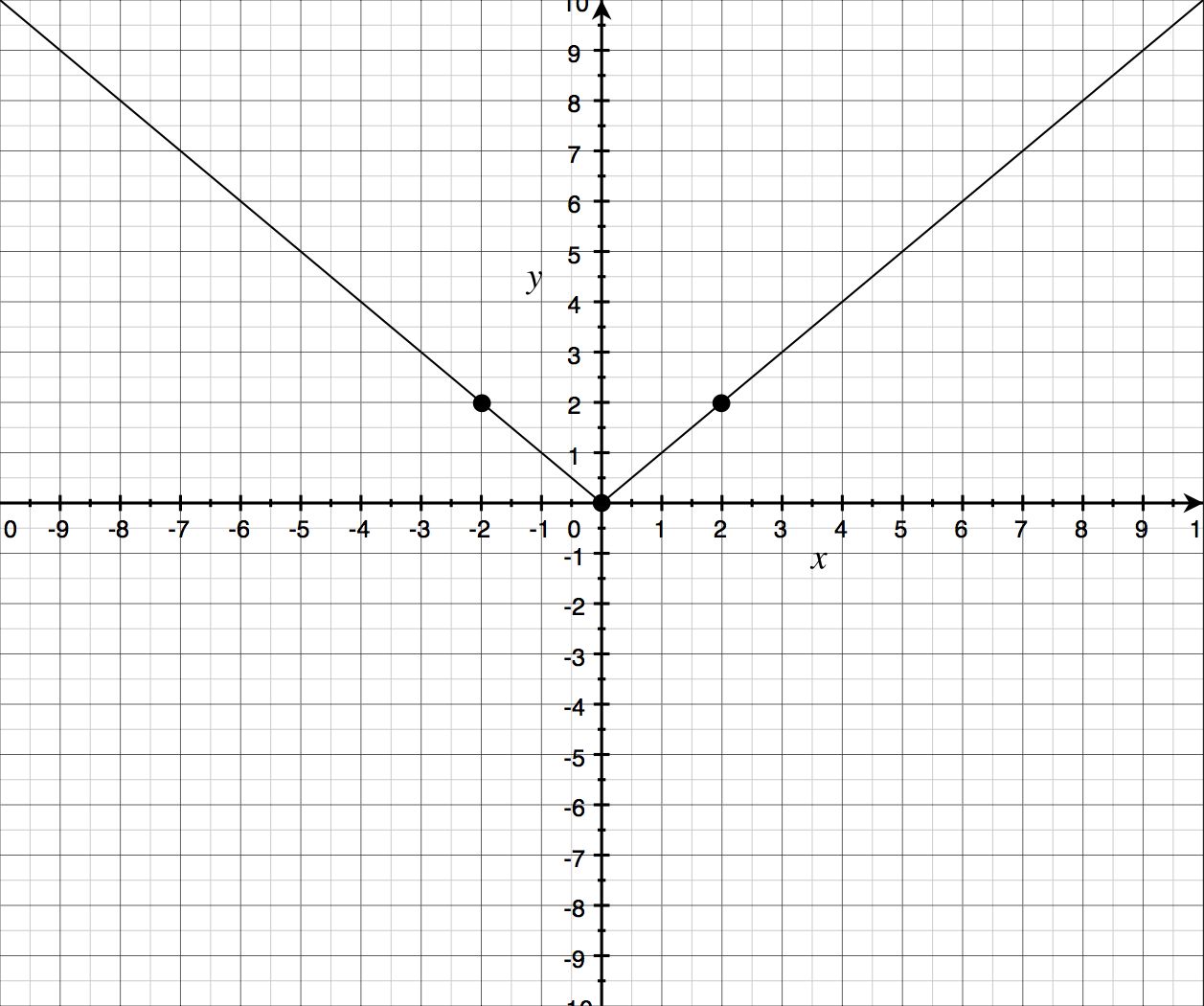
*g*(x) = 2*f*(x) *g*(x) = ­­-2*f*(x) + 2

*h*(x) = *f*(x) + 2 *h*(x) = -½*f*(x) – 1

**Part 6:** Determine where the point ends up.

|  |  |  |  |
| --- | --- | --- | --- |
| **Location of Point on the Original Function**  **y = *f*(x)** | **Translated / Transformed Function** | **Describe the Translation / Transformation**  **(Check all that apply)** | **Location of Point on the New Function** |
| (-2, 8) |  | [ ] Vertical shift up by \_\_\_\_\_\_\_  [ ] Vertical shift down by \_\_\_\_\_\_\_  [ ] Horizontal shift left by \_\_\_\_\_\_\_  [ ] Horizontal shift right by \_\_\_\_\_  [ ] Vertical stretch by \_\_\_\_\_\_  [ ] Vertical compression by \_\_\_\_\_  [ ] Flip over the x-axis |  |
| (6, 9) |  | [ ] Vertical shift up by \_\_\_\_\_\_\_  [ ] Vertical shift down by \_\_\_\_\_\_\_  [ ] Horizontal shift left by \_\_\_\_\_\_\_  [ ] Horizontal shift right by \_\_\_\_\_  [ ] Vertical stretch by \_\_\_\_\_\_  [ ] Vertical compression by \_\_\_\_\_  [ ] Flip over the x-axis |  |
| (-3, ½) |  | [ ] Vertical shift up by \_\_\_\_\_\_\_  [ ] Vertical shift down by \_\_\_\_\_\_\_  [ ] Horizontal shift left by \_\_\_\_\_\_\_  [ ] Horizontal shift right by \_\_\_\_\_  [ ] Vertical stretch by \_\_\_\_\_\_  [ ] Vertical compression by \_\_\_\_\_  [ ] Flip over the x-axis |  |
| (10.5, ¾) |  | [ ] Vertical shift up by \_\_\_\_\_\_\_  [ ] Vertical shift down by \_\_\_\_\_\_\_  [ ] Horizontal shift left by \_\_\_\_\_\_\_  [ ] Horizontal shift right by \_\_\_\_\_  [ ] Vertical stretch by \_\_\_\_\_\_  [ ] Vertical compression by \_\_\_\_\_  [ ] Flip over the x-axis |  |
| (0, -4) |  | [ ] Vertical shift up by \_\_\_\_\_\_\_  [ ] Vertical shift down by \_\_\_\_\_\_\_  [ ] Horizontal shift left by \_\_\_\_\_\_\_  [ ] Horizontal shift right by \_\_\_\_\_  [ ] Vertical stretch by \_\_\_\_\_\_  [ ] Vertical compression by \_\_\_\_\_  [ ] Flip over the x-axis |  |
| (9, 6) |  | [ ] Vertical shift up by \_\_\_\_\_\_\_  [ ] Vertical shift down by \_\_\_\_\_\_\_  [ ] Horizontal shift left by \_\_\_\_\_\_\_  [ ] Horizontal shift right by \_\_\_\_\_  [ ] Vertical stretch by \_\_\_\_\_\_  [ ] Vertical compression by \_\_\_\_\_  [ ] Flip over the x-axis |  |
| (-4, 10) |  | [ ] Vertical shift up by \_\_\_\_\_\_\_  [ ] Vertical shift down by \_\_\_\_\_\_\_  [ ] Horizontal shift left by \_\_\_\_\_\_\_  [ ] Horizontal shift right by \_\_\_\_\_  [ ] Vertical stretch by \_\_\_\_\_\_  [ ] Vertical compression by \_\_\_\_\_  [ ] Flip over the x-axis |  |

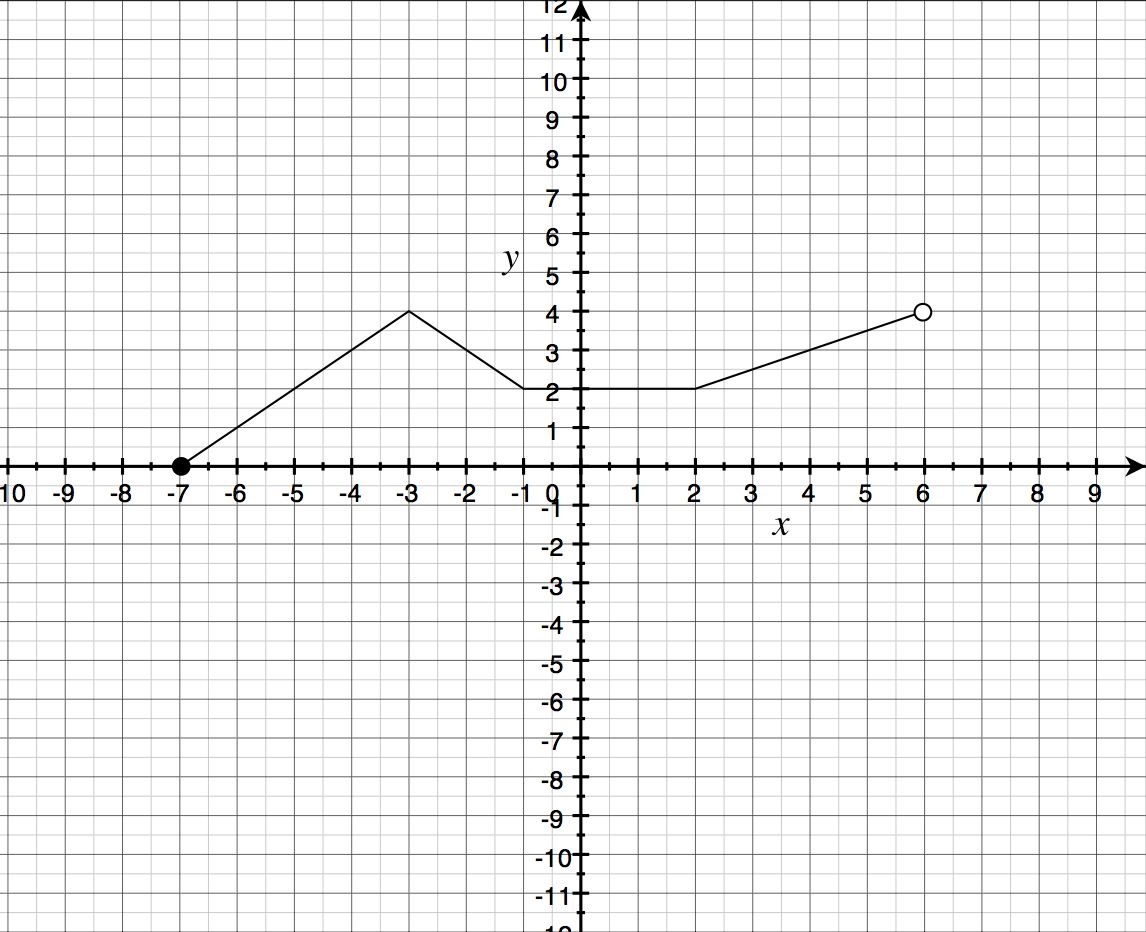
**Part 8**: Given the graph of y = *f*(x), draw and label a graph of each function.



*a*(x) = ½*f*(x)

*b*(x) =  *f*(x + 5) + 2

*c*(x) = 2 *f*(x – 4) – 6



*a*(x) = *f*(x + 2) – 4

*b*(x) = -3*f*(x)

*c*(x) = 2 *f*(x – 3) + 1